



Unit director

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The central activity of the CMIB unit is to develop small molecules to probe and control the biological activities of key targets involved in cancer (These are mainly non-B nucleic acid structures (Quadruplexes) and Kinases).

IR-photoexcitable probes designed both for subcellular tracking and targeted photodamage represents also an important research axis. The drug and probe discovery activity is sustained by Molecular Modelling approaches and Multimodal Imaging (TEM, NanoSIMS, IRM). The CMIB unit is hosting the Institut Curie-CNRS proprietary library comprised of over 9000 chemical compounds and the preclinical IRM imaging and chemical imaging facilities

The main research themes of the unit include:

- G-quadruplex targeting agents
- DNA targeted fluorescent dyes
- Kinase inhibitors
- Photo and radiosensitizers for Retinoblastoma and Glioblastoma therapy.

The main methodological approaches are :

- Chemical biology and medicinal chemistry (Hit to lead optimization)

- Molecular dynamics and virtual screening
- Multimodal imaging for 2D and 3D chemical mapping
- Development of software and Image acquisition, processing and analysis

Key publications

Year of publication 2019

Xiao Xie, Michela Zuffo, Marie-Paule Teulade-Fichou, Anton Granzhan (2019 Aug 6)

Identification of optimal fluorescent probes for G-quadruplex nucleic acids through systematic exploration of mono- and distyryl dye libraries

Beilstein Journal of Organic Chemistry : 15 : 1872–1889 : [DOI : 10.3762/bjoc.15.183](https://doi.org/10.3762/bjoc.15.183)

Yangwei Deng, Hui Chen, Xinfeng Tao, Fangyi Cao, Sylvain Trépout, Jun Ling, Min-Hui Li (2019 Jul 31)

Oxidation-Sensitive Polymersomes Based on Amphiphilic Diblock Copolypeptoids.

Biomacromolecules : XXXX : XXXX-XXXX : [DOI : 10.1021/acs.biomac.9b00713](https://doi.org/10.1021/acs.biomac.9b00713)

Paulina Prorok, Marie Artufel, Antoine Aze, Philippe Coulombe, Isabelle Peiffer, Laurent Lacroix, Aurore Guédin, Jean-Louis Mergny, Julia Damaschke, Aloys Schepers, Benoit Ballester, Marcel Méchali (2019 Jul 24)

Involvement of G-quadruplex regions in mammalian replication origin activity.

Nature communications : 3274 : [DOI : 10.1038/s41467-019-11104-0](https://doi.org/10.1038/s41467-019-11104-0)

S Houari, E Picard, T Wurtz, E Vennat, N Roubier, T D Wu, J L Guerquin-Kern, M Duttine, T T Thuy, A Berdal, S Babajko (2019 Jul 23)

Disrupted Iron Storage in Dental Fluorosis.

Journal of dental research : 98 : 994-1001 : [DOI : 10.1177/0022034519855650](https://doi.org/10.1177/0022034519855650)

Dapeng Zhang, Yujiao Fan, Hui Chen, Sylvain Trépout, Min-Hui Li (2019 Jul 22)

CO₂-activated reversible transition between polymersomes and micelles with AIE fluorescence.

Angewandte Chemie (International ed. in English) : 58 : 10260-10265 : [DOI : 10.1002/anie.201905089](https://doi.org/10.1002/anie.201905089)

Trépout S. (2019 Jul 16)

Tomographic Collection of Block-Based Sparse STEM Images: Practical Implementation and Impact on the Quality of the 3D Reconstructed Volume



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Materials : 12 : 2281 : [DOI : 10.3390/ma12142281](https://doi.org/10.3390/ma12142281)